[redacted] STAT

Ref: 552-OD-201

22 July 1964

[redacted] STAT

Project 552
Progress Report, June 1964

Gentlemen,

Enclosed are three (3) copies of [redacted] Progress STAT
Report on Project 552 for the period June, 1964 and Attachment I
"Review of Meeting - June 9, 1964."

Very truly yours,

[redacted] STAT

President

ARB/de
Encl:3 P.R. - 5 pp
3 Att. - 3 pp

STAT

PROGRESS REPORT
For
VERSATILE, HIGH PRECISION STEREO
POINT TRANSFER DEVICE

Period Covered: June 1964

Dated: 16 July 1964

Job No.: 552

Document No.: OD-199

STAT

#552 - OD-199

PROGRESS REPORT
For
VERSATILE, HIGH PRECISION STEREO
POINT TRANSFER DEVICE

All design and detailing work was completed during June. Shop follow up, debugging and re-examination of development problems is now receiving attention.

OBJECTIVE ASSEMBLY

Subassemblies are now nearing completion in assembly and adjustment. Methods and tools for optical adjustment have been built and used successfully. Since system demands optimum performance from each optical element, much attention is being made to have latitude and precision in adjustments. Limited field adjustment and dismantling is possible, although normal servicing and cleaning should require a minimum of alignment disturbance. Optical subassemblies are easily separable from viewer's structure for laboratory alignment or repairs.

EYEPIECE ASSEMBLY

Alignment procedure and tooling have been made and completed. Mechanical alterations for adjustments are complete, although final assembly is not finished. With the fixtures made to aid adjustments, alignments are easily checked. Mirror field adjustments may also be made with caution.

[redacted]

[redacted]
STAT

##552 - OD-199

SUPERSTRUCTURE AND EYEPIECE SUPPORT

Design, detailing and release for manufacture is complete. Castings have arrived for this subassembly and should be in assembly during July. Linkage design remains, as seen in customer visits. Schemes to improve vertical adjustments have been investigated and will be discussed in July meeting.

BASE FRAME CARRIAGE AND DRIVE MOTORS

"Slo-Syn" motors, two-speed gear boxes and ball screws have been received and are being checked out. Final assembly is expected in July.

VACUUM PLATEN AND MANIFOLDS

Vendor has not obtained least visibility desired by customer, and apparently there is little promise of improvement. The vendor's method of abrading groove edges is useful when very shallow grooves, approximately .0002 inches deep, are to be made. Lack of uniformity of abrading effect is another of disappointing feature seen in recent plates. We are studying groove polishing methods, and we will have some conclusion in July. It is our goal to render grooves nearly invisible yet maintain a reasonable pull down time if ten (10) second requirement cannot be met. Distortion of film across grooves will not be overlooked, but good air passage is essential for quick operation.

STAT

#552 - OD-199

HIGH INTENSITY LIGHT SOURCE

Light source is designed, detailed and released for manufacture. Modifications to surrounding castings and mechanisms have been completed. Design features easily accessible lamp and mirror assembly. Lamp is 250 watt DKN, a low voltage lamp with a dichroic "cold" reflector. Further attention of IR content in light is made possible by another "cold" mirror in front of lamp. Forced cooling of lamp (chamber) is handled by six (6) cabinet mounted blowers. Lamp life rating is 25 hours.

MAIN CONSOLE AND CONTROL CONSOLE

Main console has been received and is being modified for installation and painting.

ELECTRICAL SCHEMATICS, WIRING DIAGRAMS

Because there was difficulty in making the joy stick potentiometers and linearity between system magnification and carriage velocity, circuits were re-examined and several improvements were made. Although wiring will be delayed several weeks, system performance should be markedly more linear and reliable. Schematics and wiring diagrams will be updated in July with all possible wiring to be completed simultaneously.

STAT

#552 - OD-199

JOY STICK

Dual joy stick is designed, detailed and released for manufacture. Work is in progress to route wiring around mechanism and is posing several problems. Return spring schemes have been studied and a mock up will be demonstrated at July meeting. This approach features nearly a non directional sense to return handle to null position. Joy stick mechanism coupling scheme is a low friction linkage that should offer little resistance of "feel" of its own. Because the joy stick mechanism has become 7 inches deep, approximately 3 1/2 inches projects below the writing top. This obstruction does not offer interference for operator, but does cause concern when folding up writing top and attempting to pass a 35 inch doorway. To overcome this problem, the joy stick mechanism is now removable. Handles and captive screws permit convenient handling.

POINT MARKING

Laser system has had a number of breakdowns ranging from sparks from connectors to colorimeter failures prohibiting system checkout and specimen preparation. Laser heads, crystals, power supplies and colorimeter have been sent for repair several times and vendor claims equipment has always left their factory in first class order. When vendor's vacation is over in the middle of July, we plan to return the equipment and witness their checkout tests.

STAT

#552 - OD-199

Work to be Completed

1. Complete detailing
2. Follow up manufacturing and purchasing phases
3. Complete all possible subassemblies
4. Complete schematics wiring diagrams
5. Check and test subassemblies as they are completed

STAT

ATTACHMENT I to OPTOmechanisms Progress Report #552 - OD-199 dtd 7/16/64

REVIEW OF MEETING - JUNE 9, 1964

ENCODER

A 2,500 count Optisyn has been decided, although no contract is firmed.

[redacted] stated there will be a delay in delivery because of late decision on encoder purchase. STAT

Questioned Vacuum Manifold Design

Stated design is almost finished with detailing and manufacturing.

GLASS PLATENS

Grooves to depth, but not polished to least visibility.
Time 5 inch film 4-5 seconds)
9 inch film 10 seconds) .0013 deep groove depth

LASER

Stated problem of lowered output with repeated firing. Vender states shipment June 5, thereafter tests and evaluation of laser system.

Add graduations to "level" dial.

Replace "Fire" rocker switch with (2) momentary push-button switches.

SYSTEM MAGNIFICATION

State system magnification for particular eyelens used. Other eyelens magnification will not cause concern as field will be proportioned to eyelens change.

STAT

Attachment I to [redacted] Progress Report #552 - OD-199 STAT

POINT MARK FLAGGING

Customer will decide whether parenthesis will satisfy flagging need. wrong

Would like only point mark scheme -- this is accomplished in "Blank" wheel position, "open" position will be filled with desired flagging shape.

Add hole for point mark in "Blank" wheel position.

CONTROL PANEL

Right and left high intensity to have different finishes to have distinctive touch.

Change holddown titles:

"Mode" to "Holddown"

"Advance" (on key) to "Release"

Commented on sharp corners of cabinets.

ENCODER CONTROLS

Customer desires Left-both-Right, switch on auxiliary cabinet. Also, wants 2825B Control Panel and possibly preset - reset switches in box on writing top. Customer will decide this point.

NAVY VIEWER

Discussed [redacted] 1,000 count "Incrosyn" encoder. STAT
Were given proposal.

RADIAL ARM ELEVATION MEANS

Stated that operation has been improved over performance during last visit.

STAT

Attachment I to [redacted] Progress Report #552 - OD-199 STAT

DUAL JOY STICK

Stated design complete and midway in detailing, and that the unit is removable for passing through a 35 inch doorway limitation.

BALL SCREWS DISCUSSED

Discussed delays, problems of maintaining backlash, torque level. Warned customer that clean environment is required.

Shown Vacuum Manifolds Layout.

FILM TEMPERATURE

Practical limit - 130 degrees F.

CONTROL PANEL FOR ENCODER

Readout on shelf. Controls in auxiliary cabinet and on writing top.

JOY STICK

Control handle senses distinct forces.

May possibly find double joy stick will offer more resistance.